

2004 GALVESTON BAY INVASIVE SPECIES RISK ASSESSMENT  
INVASIVE SPECIES SUMMARY

Created by: Environmental Institute of Houston, University of Houston-Clear Lake  
and the Houston Advanced Research Center

<b>Common Name:</b> Common salvinia																	
<b>Latin Name:</b> <i>Salvinia minima</i>																	
<b>Category:</b> Aquatic Plant																	
<b>Place of Origin:</b> Central and South America																	
<b>Place of Introduction:</b> Florida <a href="http://nas.er.usgs.gov/plants/maps/sa_minim.gif">http://nas.er.usgs.gov/plants/maps/sa_minim.gif</a> (Accessed 19 March 2003).																	
<b>Date of Introduction:</b> 1928 <a href="http://nas.er.usgs.gov/plants/maps/sa_minim.gif">http://nas.er.usgs.gov/plants/maps/sa_minim.gif</a> (Accessed 19 March 2003).																	
<b>States Effected:</b> <table> <tr> <td>Alabama</td><td>Georgia</td><td>Maryland</td><td>New Mexico</td><td>Oklahoma</td><td>South Carolina</td></tr> <tr> <td>Florida</td><td>Louisiana</td><td>Massachusetts</td><td>New York</td><td>Puerto Rico</td><td>Texas</td></tr> </table> <a href="http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=SAMI7">http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=SAMI7</a> (Accessed 19 March 2003).						Alabama	Georgia	Maryland	New Mexico	Oklahoma	South Carolina	Florida	Louisiana	Massachusetts	New York	Puerto Rico	Texas
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<b>Life History:</b> <p>“<i>Salvinia minima</i> is believed to be a sterile species. It is not known to produce fertile spores and is postulated to be of hybrid origin (Schneller 1980). Regardless, sporocarps are common among the submersed leaves of large <a href="#">plants</a>. Sporocarps are sacs, which enclose smaller sacs (sporangia) that are formed to hold microscopic spores. Shaped like small lemons (~1mm wide) sporocarps are attached in spirals along the <a href="#">main axis</a> of the submersed filaments.” <a href="http://salvinia.er.usgs.gov/html/identification1.html">http://salvinia.er.usgs.gov/html/identification1.html</a> (Accessed 20 March 2003).</p>																	
<b>Growth/Size:</b> <p>“The continuous branching and fragmentation of rhizomes turns out large volumes of vegetative daughter plants throughout the growing season. Copious hairy coverings minimize the desiccation of plants spotted on boats, <a href="#">trailers</a>, alligators, turtles and even dogs leaving the water. Lateral buds deeply imbedded in the rhizome, may lie dormant during periods of reduced moisture and cold temperature. Small rhizome fragments, commonly sheltered in associating vegetation, provide material for reintroduction on the return of favorable growing conditions.” <a href="http://salvinia.er.usgs.gov/html/identification1.html">http://salvinia.er.usgs.gov/html/identification1.html</a> (Accessed 20 March 2003).</p> <p>“Plants of <i>S. minima</i> are small, commonly 1 to 4 cm long. The leaves (truly fronds) are in whorls of 3 along a slender stem (rhizome) and are of two kinds. Two of the 3 leaves from each node float on the water, are oval to elliptic in shape and about 1 to 1.5 cm long and nearly as wide. The upper leaf surface has numerous stiff hairs that are divided at the apex into 4 branches and prevent the leaves from becoming wet. The third leaf is dissected into numerous root-like segments and hangs down in the water. Sporocarps occasionally occur, growing amid the submersed leaves.” <a href="http://www.wes.army.mil/el/aqua/apis/plants/html/salvinia.html">http://www.wes.army.mil/el/aqua/apis/plants/html/salvinia.html</a> (Accessed 20 March 2003).</p>																	
<b>Habitat:</b> <p>“Shallow backwaters of bayous, lakes and ponds, oxbows, ditches, slow flowing streams, cypress swamps and marshes....Like <i>Salvinia molesta</i>, <i>S. minima</i> is vulnerable to conditions of salinity. Biologists along the coast of southeastern Texas find <i>Salvinia minima</i> in their coastal study sites only during wintertime, when freshwater outflow is high and salinity measurements decline to 4 – 7 ppt. They regularly control <i>Salvinia minima</i>, and improve waterfowl habitat, by opening gates to allow saline water from the Gulf of Mexico into the bayous (Kirk Blood, Texas Parks and Wildlife Department, Port Arthur, Texas, pers. comm.). During August, on the Waterhole Branch of the Fish River, Alabama, <i>Salvinia minima</i> was registered as growing well with surface water salinity levels at 4 – 5 ppt. (Scott Phipps, Weeks Bay National Estuarine Research Reserve, AL, pers. comm.). <a href="http://salvinia.er.usgs.gov/html/identification1.html">http://salvinia.er.usgs.gov/html/identification1.html</a> (Accessed 20 March 2003).</p> <p>“Plants of <i>Salvinia</i> reproduce by vegetative fragments and occasionally by the production of spores borne in small round structures (sporocarps). The various species of <i>Salvinia</i> grow in still waters of ponds, small lakes, canals, and slow streams. Several species of <i>Salvinia</i> are commonly cultivated in aquaria and decorative pools.” <a href="http://www.wes.army.mil/el/aqua/apis/plants/html/salvinia.html">http://www.wes.army.mil/el/aqua/apis/plants/html/salvinia.html</a> (Accessed 20 March 2003).</p>																	
<b>Attitude (aggressive, etc.):</b> <p>“In Texas and Louisiana, <i>S. minima</i> typically occurs in dense, expansive populations and is known as a very troublesome weed. At</p>																	

[Lacassine Bayou](#), southwestern Louisiana, plants completely blanket a waterway measuring 19.3 km long and 110 m wide (Jacono et al 2001). [Mats](#) in Louisiana have been measured as thick as 20 - 25 cm (Montz 1989)...  
<http://salvinia.er.usgs.gov/html/identification1.html> (Accessed 20 March 2003).

**Physical Description:**

“Salvinia plants are floating ferns. There are 10 species of *Salvinia* in the world, none of which are native to the United States. This species is about 3/4 inch in width. It occurs in still waters having high organic content.

Water fern has joined oval leaves. Its leaf surfaces are covered with stiff hairs. Water fern has root-like structures which are actually modified fronds.”

**Management Recommendations / Control Strategies:** include references for existing site-specific strategies “*Salvinia minima* Baker (Water Spangles) Mechanical Control Information:

The following are potential types of mechanical control methods that have been used with success for the management of water spangles.

[Cookie Cutter](#)

[Flail Chopper](#)

[Harvesting”](#)

<http://www.wes.army.mil/el/aqua/apis/mechanical/html/salvinia.html> (Accessed 20 March 2003).

Biological Management: <http://www.weedbiocontrol.org/salvinia/>

**Agencies Collecting Data:**

Gulf of Mexico Program

USGS

**References (includes journals, agency/university reports, and internet links):**

1. IFAS - <http://aquat1.ifas.ufl.edu/saropic.html>
2. USGS - <http://salvinia.er.usgs.gov/html/identification1.html>
3. ARS - <http://www.nal.usda.gov/ttic/tektran/data/000011/52/0000115206.html>
4. USGS – CARS - [http://www.fcsc.usgs.gov/posters/Nonindigenous/Status\\_of\\_Salvinia/status\\_of\\_salvinia.html](http://www.fcsc.usgs.gov/posters/Nonindigenous/Status_of_Salvinia/status_of_salvinia.html)
5. STPL - <http://www.wes.army.mil/el/aqua/apis/plants/html/salvinia.html>
6. <http://www.weedbiocontrol.org/salvinia/>

**Available Mapping Information:**

PLANTS - [http://plants.usda.gov/cgi\\_bin/plant\\_profile.cgi?symbol=SAMI7](http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=SAMI7)

USGS - [http://nas.er.usgs.gov/plants/maps/sa\\_minim.gif](http://nas.er.usgs.gov/plants/maps/sa_minim.gif)

USGS - [http://salvinia.er.usgs.gov/html/s\\_minima\\_timeseries.html](http://salvinia.er.usgs.gov/html/s_minima_timeseries.html)

USGS - [http://salvinia.er.usgs.gov/html/s\\_minima\\_dist.html](http://salvinia.er.usgs.gov/html/s_minima_dist.html)

USGS – CARS - [http://www.fcsc.usgs.gov/posters/Nonindigenous/Status\\_of\\_Salvinia/status\\_of\\_salvinia.html](http://www.fcsc.usgs.gov/posters/Nonindigenous/Status_of_Salvinia/status_of_salvinia.html)

STPL - <http://www.wes.army.mil/el/aqua/apis/plants/html/salvinia.html>